

BASIC SCIENCE: GENE
REGULATION AND STRUCTURE

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*Gene Expression: Steroid Hormones Poster Session,
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Hormonal Regulation of a Novel Kallikrein-Like Gene, KLK-L4, in Breast Cancer.
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Kallikreins belong to a subgroup of serine proteases which play important roles in diverse physiological processes. By using the positional candidate gene approach, we were able to identify a novel serine protease gene that maps to chromosome 19q13.3-q13.4, the location of the human kallikrein gene family. Screening and sequencing of expressed sequence tags (ESTs) allowed us to establish the expression of the gene and delineate its genomic organization. We tentatively named this gene KLK-L4 (for kallikrein-like gene 4, Genbank accession AF135024). Using reverse-transcription polymerase chain reaction (RT-PCR), we amplified mRNA from various tissues and found that KLK-L4 was highly expressed in the testis, prostate, mammary and salivary glands, and moderately expressed in adrenal gland, pancreas, thyroid, thymus, lung, trachea and colon. We also found KLK-L4 expression in the breast cancer cell lines BT-474 and T-47D. Using these cell lines as models, we found that KLK-L4 was upregulated by estrogen, androgen and progesterone, implicating the possibility that these ligands affect the expression of KLK-L4 in breast cancer. Furthermore, based on information of other kallikrein genes localized in the same region, we believe that this gene may be involved in the pathogenesis and/or progression of breast cancer. Our future studies will attempt to elucidate the biological function of KLK-L4 in breast and other tissues.